

SHAFT PARTS FOR MACHINE STRUCTURAL USE EXCELLENT IN TORSIONAL FATIGUE STRENGTH

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Abstract of JP 8053714 (A)

PURPOSE: To produce shaft parts for machine structural use excellent in torsional fatigue strength by subjecting shaft parts for machine structural use having a specified compsn. to forming, thereafter executing induction hardening and satisfying specified conditions. **CONSTITUTION:** Shaft parts for machine structural use with a prescribed shape constituted of a steel stock contg., by mass, 0.30 to 0.60% C, 0.05 to 1.0% Si, 0.3 to 2.0% Mn, 0.015 to 0.05% Al, 0 to 0.03% S, 0 to 0.015% P, and the balance Fe with inevitable impurities is subjected to forming. Next, this shaft parts are subjected to induction hardening of ≥ 100 KHz frequency, and the ratio (CD/R) of the depth of the hardened layer CD to 50% martensitic hardness to the radius R of the induction-hardened shaft parts is regulated to 0.3 to 0.7.; Furthermore, the value of A prescribed by the formula I is allowed to satisfy every of the inequalities II to TV. Thus, the shaft parts for machine structural use exceedingly improved in torsional fatigue properties can be obtd.

$$A = \{ [\gamma f \times (CD/R)] / (Hf - Hc) \} \times 1000$$

I

$$C: 0.3 \sim 0.4 \text{ 炭素鋼においては, } 1.9 \leq A \leq 16.6$$

II

$$C: 0.4 \sim 0.5 \text{ 炭素鋼においては, } 1.8 \leq A \leq 14.3$$

III

$$C: 0.5 \sim 0.6 \text{ 炭素鋼においては, } 1.7 \leq A \leq 13.6$$

IV

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